

Tennessee Pollution Prevention Partnership Success Story



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Enhanced Compressed Air Distribution Reduces Electricity Usage

The Member

Marvin Windows and Doors of Ripley is a family-owned business with corporate offices located in Warroad, MN. The Ripley facility was opened in 1980 and has grown to 680 associates primarily on the day shift. When you visit the Marvin W&D Ripley facility, you find a certain type of individual: independent, hard working and strong in character and conviction. It's certainly why some of Marvin's greatest innovations come from their employees. At this location, Marvin produces a high-end door product, including the "storm plus" designed to meet severe weather codes, for residential and commercial applications. Each door assembly is built to order and promptly shipped on Marvin's own fleet and with no finished goods inventory maintained in a warehouse. At Marvin's Ripley facility Continuous Improvement tools are extensively utilized to be the "best in class" and every job is performed one way: right. For the past four years, the Marvin Ripley facility has been a TOSHA STAR facility under the Voluntary Protection Program and wants to be known as a great place to work and the employer of choice in Ripley. This dedication may never make Marvin the biggest window and door manufacturer in the world but we believe it makes us the best.

The Story

The demand for compressed air at the Marvin Ripley facility was such that the facility was operating with two 100 hp and one-150hp compressors. A study conducted by facilities engineering revealed an opportunity to reduce the need for all three compressors and save an estimated \$25,000 annually in energy cost. The project was four-fold. First, utilizing ultrasound

equipment, all leaks were located, repaired, and a system incorporated to assure the leaks remain permanently corrected. Second, a four-inch main airline was installed, replacing the existing two-inch line that was causing excessive pressure drop. Third, the 150 hp compressor is now only required on the primary shift. Fourth, after the new line was installed, the facility began operating without one of the 100hp compressors except on peak demand, so an electronic interface was installed that will start and stop the compressor according to demand.

The Success

After the air distribution system enhancements were in place, Marvin W&D, in conjunction with the TVA energy analyst, validated the savings for the energy conservation project. Having completed all the elements as planned, leak check and correction, new four-inch pipe loop, and demand controls on the 150 hp compressor, we determined that approximately \$23,000 was saved by correcting air leaks located throughout the facility. The other 100 hp compressor in building #6 is now used only as a backup. The 100 hp compressor in building #1 is the only unit since these changes that is operating continuously.

The Pollution Prevented

The result of these improvements is the 150hp now only runs 12 hrs per day instead of 24 hrs, and this electrical savings alone based on 113 KW per hour and 250 operating days per year is 678,000 KW (\$12,424.35 per year).

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